

In the Claims

Claim 1 (original): A semiconductor processing method for forming an electrical contact, comprising:

providing a semiconductor substrate having a surface suitable for electroless plating, a layer over the surface, and an electrically conductive node supported by the layer;

forming an opening through the layer and to the surface, a periphery of the opening including an electrically conductive portion of the electrically conductive node; and

electroless plating a conductive material within the opening and from the suitable surface, the electroless-plated material forming an electrical contact to the electrically conductive node.

Claim 2 (original): The method of claim 1 wherein the layer is electrically insulative.

Claim 3 (original): The method of claim 1 wherein an insulative material is over the node, and wherein the opening extends through the insulative material.

Claim 4 (original): The method of claim 1 wherein the insulative material over the node is part of the layer supporting the node.

Claim 5 (original): The method of claim 2 wherein the layer is comprised by a stack of two or more electrically insulative layers, and wherein the opening extends through the stack.

Claim 6 (original): The method of claim 2 wherein the layer comprises BPSG.

Claim 7 (original): The method of claim 1 wherein the opening is formed to a depth of at least about 3 microns.

Claim 8 (original): The method of claim 1 wherein the electroless-plated conductive material comprises one or both of nickel and cobalt.

Claim 9 (original): The method of claim 1 wherein the node includes an electrically conductive layer, and wherein the opening extends through the electrically conductive layer.

Claim 10 (original): The method of claim 1 wherein the semiconductor substrate comprises a monocrystalline silicon base supporting a structure having the surface suitable for electroless plating.

Claim 11 (original): The method of claim 10 wherein the structure is a block over the monocrystalline silicon base; and wherein the surface suitable for electroless plating is an uppermost surface of the block.

Claim 12 (original): The method of claim 11 wherein the structure is a block over the monocrystalline silicon base; and wherein the surface suitable for electroless plating comprises one or more of palladium, zinc, silver, nickel and cobalt.

Claim 13 (original): The method of claim 11 wherein the structure is a block over the monocrystalline silicon base; and wherein the surface suitable for electroless plating comprises one or both of nickel and cobalt.

Claim 14 (original): A semiconductor processing method for forming an electrical contact, comprising:

providing a semiconductor substrate which supports an electrically insulative material and a pair of electrical nodes, the electrical nodes being a first node and a second node, a first opening extending through the electrically insulative material to the first node and a second opening extending through the electrically insulative material to the second node, the first node being at a first elevational height over the substrate and the second node being at a second elevational height over the substrate, the first elevational height being less than the second elevational height and accordingly the first opening being deeper than the second opening, the first electrical node having a first surface exposed within the first opening and the second electrical node having a second surface exposed within the second opening, the first surface being suitable for electroless plating and the second surface not being suitable for electroless plating;

electroless plating a first conductive material within the first opening and from the first surface to form a first conductive material plug extending to a height within the first opening that is about the same as the second elevational height;

activating the second surface to render the second surface suitable for electroless plating; and

after activating the second surface, electroless plating a second conductive material within the first and second openings, the second conductive material within the first opening forming a second conductive material plug extending upwardly from the first conductive material plug, and the second material within the second opening forming a second conductive material plug extending upwardly from the second surface.

Claim 15 (original): The method of claim 14 wherein the first and second conductive materials are compositionally the same as one another.

Claim 16 (original): The method of claim 14 wherein the second conductive material plugs within the first and second openings extend to an upper surface of the electrically insulative material.

Claim 17 (original): The method of claim 14 wherein the second conductive material plugs within the first and second openings extend upwardly beyond an upper surface of the electrically insulative material.

Claim 18 (original): The method of claim 14 wherein the first node is part of a digit line and the second node is part of a capacitor electrode.

Claim 19 (original): A semiconductor processing method for forming electrical contacts to a capacitor electrode and a digit line, comprising:

providing a semiconductor substrate, the semiconductor substrate supporting a digit line and a spacer structure, the digit line comprising a region and the spacer structure comprising another region; the digit line region having an upper surface and the spacer structure region having another upper surface, the digit line region upper surface being about the same elevational height over the substrate as the spacer structure region upper surface, the semiconductor substrate comprising a first insulative material over the digit line region and a second insulative material over the spacer structure region, the semiconductor substrate comprising a capacitor electrode supported by the substrate;

forming openings through the first and second insulative materials, the opening through the first insulative material being a first opening and extending to the upper surface of the digit line region, the opening through the second insulative material being a second opening and extending to the upper surface of the spacer structure region, the second opening having a periphery which includes an electrically conductive portion of the capacitor electrode; and

electroless plating a conductive material within the first and second openings, the electroless plating initiating from the upper surfaces of the digit line region and spacer structure region, the electroless-plated material forming an electrical contact to the digit line

in the first opening and forming an electrical contact to the capacitor electrode in the second opening.

Claim 20 (original): The method of claim 19 wherein the capacitor electrode comprises one or more of TiN, WN, WSi and conductively-doped silicon, with the listed compositions being shown in terms of the elements contained therein rather than in terms of a particular stoichiometry of the elements within the compositions.

Claim 21 (original): The method of claim 19 wherein the spacer structure is a dummy structure.

Claim 22 (original): The method of claim 19 wherein the first and second insulative materials are comprised by a common layer.

Claim 23 (original): The method of claim 22 wherein the common layer comprises BPSG.

Claim 24 (original): The method of claim 22 wherein the common layer comprises a thickness of at least about 3 microns over the digit line region and spacer structure region.

Claim 25 (original): The method of claim 22 wherein second opening extends through the capacitor electrode.

Claim 26 (original): The method of claim 24 wherein the second opening extends through a segment of the capacitor electrode, and wherein the common layer comprises a thickness of less than or equal to about 1 micron over the segment of the capacitor electrode.

Claim 27 (original): The method of claim 19 wherein the capacitor electrode is a capacitor plate electrode, the method further comprising:

forming a capacitor storage node electrode supported by the substrate;

forming at least one dielectric material over the capacitor storage node electrode; and

forming the capacitor plate electrode over the at least one dielectric material.

Claim 28 (original): The method of claim 27 wherein the second opening extends through the capacitor plate electrode and the at least one dielectric material, but does not extend through the capacitor storage node electrode.

Claim 29 (original): The method of claim 19 wherein the upper surfaces of the digit line region and spacer structure region have the same composition as one another prior to formation of the layer.

Claim 30 (original): The method of claim 29 wherein the upper surfaces of the digit line region and spacer structure region have a suitable composition for the electroless plating prior to the formation of the layer.

Claim 31 (original): The method of claim 30 wherein the suitable composition for the electroless plating comprises one or more of palladium, silver, zinc, nickel and cobalt.

Claim 32 (original): The method of claim 30 wherein the suitable composition for the electroless plating comprises one or both of nickel and cobalt.

Claim 33 (original): The method of claim 29 wherein the upper surfaces of the digit line region and spacer structure region do not have a suitable composition for the electroless plating prior to the formation of the layer, and are activated after the formation of the first and second openings to be suitable for the electroless plating.

Claim 34 (original): The method of claim 33 wherein the activation comprises provision of a sufficient amount of one or more of palladium, silver, zinc, nickel and cobalt on the upper surfaces of the digit line region and spacer structure region to make the electroless plating spontaneous.

Claims 35-49 (canceled).